

AMENDMENTS TO THE CLAIMS

Claims 1 and 2 (Cancelled)

3. (Currently Amended) A method for producing a cylindrical or needle bearing structure including a rolling raceway having a surface and receiving at least one roller, comprising the steps of:

forming a the rolling raceway surface, comprising the steps of;

carburizing the rolling raceway surface to form a surface carburizing layer; and

carbonitriding said the rolling raceway surface ~~of a bearing structure~~ to form a layer containing 30% to 80% retained austenite for contacting a the surface carburizing layer ~~used as a~~ rolling raceway surface of the roller of the cylindrical bearing;

forming one of providing a the cylindrical bearing or and a the needle roller bearing;

carbonitriding the a surface of said bearing the roller to produce an amount of retained austenite in a surface layer that is increased by about 30% from an austenite concentration of the roller surface prior to the step of carbonitriding;

subjecting said the roller to a surface finishing which produces micro concave-convex portions in a random direction; and

forming the bearing structure wherein an L10 life ratio of said the bearing structure, when tested using standard lubricant, is greater than or equal to three times an L10 ratio of the a conventional bearing structure.

4. (Currently Amended) A method for forming a rolling raceway surface for a cylindrical bearing comprising:

carburizing a surface of said rolling raceway surface to produce a carburized layer; and

carbonitriding a surface layer of said carburized layer;

wherein the step of carbonitriding including includes forming a surface layer containing from 30% to 80% retained austenite in said rolling raceway surface; and

~~yielding forming said rolling raceway wherein an~~ the L10 life ratio of said rolling raceway, when tested using standard lubricant, is greater than or equal to three times an L10 life ratio of the conventional rolling raceway.

5. (Previously Presented) The method according to claim 4, further comprising:

surface finishing a surface of said surface layer after the step of carbonitriding; and

the step of surface finishing being effective to produce a surface having a cylindricity and a surface roughness suitable for use as a rolling raceway surface.

6. (Previously Presented) The method according to claim 5, wherein the step of finishing includes producing micro concave-convex portions in random directions said surface.

7. (Previously Presented) The method according to claim 4, further comprising heat treating said rolling raceway surface to produce residual compression stress.